

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A band-gap reference circuit, comprising:
 - a band-gap reference unit comprising a ~~plurality of transistors~~ first transistor, a second transistor and a third transistor, wherein said first and second transistors share a common base that is shunted to the collector of said first transistor and wherein said third transistor is coupled to the collector of said second transistor;
 - a buffer circuit ~~electronically~~ coupled with said band-gap reference unit;
 - a voltage pull-up device ~~electronically~~ coupled between said band-gap reference unit and said buffer circuit, wherein said voltage pull-up device is implemented as a ~~first~~ fourth transistor; and
 - a ~~second~~ fifth transistor operable as an emitter follower for the emitters of said ~~plurality of first, second and third~~ transistors, wherein the emitter of said ~~second~~ fifth transistor is ~~electrically~~ coupled to the base of said buffer circuit via said voltage pull-up device, the base of said fifth transistor is coupled to each of the emitters of said first, second and third transistors, and the collector of said fifth transistor is coupled to Vcc; and wherein said ~~second~~ fifth transistor and said voltage pull-up device in combination pull the VBE of said buffer circuit toward Vcc.
2. (Previously Presented) A band-gap reference circuit as described in Claim 1, wherein said band-gap reference circuit resides in an integrated circuit device.
3. (Previously Presented) A band-gap reference circuit as described in Claim 1, wherein said band-gap reference circuit is implemented in a silicon substrate.

4. (Currently Amended) A band-gap reference circuit as described in Claim 1, wherein said buffer circuit is implemented as a ~~third~~ sixth transistor.

5-6. (Canceled).

7. (Currently Amended) An electronic device, comprising:

a silicon substrate;

electronic circuitry constructed in said silicon substrate; and

a band-gap reference circuit comprising:

a band gap reference unit comprising a ~~plurality of transistors~~ first transistor, a second transistor and a third transistor, wherein said first and second transistors share a common base that is shunted to the collector of said first transistor and wherein said third transistor is coupled to the collector of said second transistor,

a buffer circuit,

a voltage pull-up device ~~electronically~~ coupled in said electronic device, and

a ~~first~~ fourth transistor operable as an emitter follower for the emitters of said ~~plurality of first, second and third~~ transistors, wherein the emitter of said ~~first~~ fourth transistor is ~~electrically~~ coupled to said buffer circuit via said voltage pull-up device, the base of said fourth transistor is coupled to each of the emitters of said first, second and third transistors, and the collector of said fourth transistor is coupled to Vcc; and wherein said first fourth transistor and said voltage pull-up device in combination pull the VBE of said buffer circuit toward Vcc;

wherein said electronic circuitry requires reference to an the output voltage of said band-gap reference circuit, wherein said buffer circuit comprises a ~~second~~ fifth transistor, and wherein said voltage pull-up device is coupled between said band-gap reference unit and said buffer circuit.

8. (Original) An electronic device as described in Claim 7, wherein said electronic device is an integrated circuit device.

9-11. (Canceled).

12. (Original) An electronic device as described in Claim 7, wherein said band-gap reference circuit is enabled for low supply voltage.

13. (Currently Amended) An electronic device as described in Claim 12, wherein said band-gap reference circuit is enabled for said low supply voltage by said ~~[[a]]~~ voltage pull-up device.

14-15. (Canceled).

16. (Currently Amended) In an electronic device, a method for providing a reference voltage, comprising:

flowing current through an electronic element such that a ~~the~~ band-gap voltage of said electronic element provides said reference voltage, said electronic element comprising a plurality of transistors first transistor, a second transistor and a third transistor, wherein said first and second transistors share a common base that is shunted to the collector of

said first transistor and wherein said third transistor is coupled to the collector of said second transistor;

providing a buffer circuit and a band gap voltage reference unit coupled to said buffer circuit; and

adjusting the voltage across said buffer circuit, by use of a voltage pull-up device in combination with a ~~first~~ fourth transistor to pull the VBE of said buffer circuit toward Vcc, wherein said voltage pull-up device is coupled between said buffer circuit and said band gap voltage reference unit, so that said ~~band-gap~~ reference voltage is maintained, wherein said ~~first~~ fourth transistor is coupled as an emitter follower for the emitters of said ~~plurality of first, second and third~~ transistors, and wherein the emitter of said ~~first~~ fourth transistor is ~~electrically~~ coupled to the base of said buffer circuit via said voltage pull-up device, the base of said fourth transistor is coupled to each of the emitters of said first, second and third transistors, and the collector of said fourth transistor is coupled to Vcc.

17. (Original) A method as described in Claim 16, wherein said electronic device is an integrated circuit device.

18. (Original) A method as described in Claim 16, wherein said buffer circuit is implemented as a transistor circuit.

19. (Original) A method as described in Claim 18, wherein said transistor circuit is connected as an emitter follower.

20. (Original) A method as described in Claim 16, wherein said band-gap reference circuit is enabled for low supply voltage.

21. (Currently Amended) A method as described in Claim 20, wherein said band-gap reference circuit is enabled for said low supply voltage by said ~~[[a]]~~ voltage pull-up device ~~coupled between said buffer circuit and a band gap reference unit.~~

22. (Canceled).

23. (Currently Amended) A method as described in Claim 21, wherein said ~~band gap~~ reference voltage is provided by current through a transistor with a VBE of less than 1.0 volts.

24. (New) A band-gap reference circuit as described in Claim 1, further comprising a sixth, a seventh, an eighth and a ninth transistor coupled to said first, second and third transistors, wherein said sixth and seventh transistors share a common base that is coupled to VBG, wherein said second and seventh transistors share a collector coupled to the base of said third transistor, wherein the collector of said third transistor is coupled to the drain of said eighth transistor, and wherein said eighth and ninth transistors share a gate that is shunted to the drain-collector connection between said third and eighth transistors.